

HANDBOOK OF PHONOLOGICAL DATA
FROM A SAMPLE OF THE WORLD'S LANGUAGES

A Report of the Stanford Phonology Archive

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	195 German	195 German	195 German
195	01 p-aspirated ⁰⁴ [p] ⁶⁰ (free)	16 x [c-fricative] ^{08 62}	54 upsilon-trema ^{17 18 21}
195	02 b	17 m [m-labiodental] ¹² (free)	55 e-long ^{17 18} [e] ⁶⁵ [e-over-short] ^{20 67} (free)
195	03 t-aspirated ^{02 03 04} [t] ⁶⁰ (free)	18 n ^{02 03}	56 o-trema-long ^{17 18} [o-trema] ⁶⁵
195	04 d ⁰²	19 eng [eng-prevelar] ⁶¹	57 epsilon ^{17 18 21}
195	05 k-aspirated ⁰⁴ [k] ⁶⁰ (free) [k-prevelar-aspirated] ⁶¹ [k-prevelar] ^{60 61} (allo,free)	20 l ^{02 14}	58 o-open-trema ^{17 18 21}
195	06 g [g-prevelar] ⁶¹	21 r-trill-uvular ^{15 16} [caret-glide] ⁶³ [caret] ⁶⁴ [r-trill] (free)	59 epsilon-long ^{17 18 32}
195	07 p/f ^{01 06}	22 h	60 schwa ^{17 18 22 33}
195	08 t/s ⁰⁶	23 glottal stop ³⁴ (transitional)	61 ash-dot ^{17 18 21}
195	09 f		62 a-long ^{17 18}
195	10 v		63 u-long ^{17 18} [u] ⁶⁵ [u-over-short] ^{20 68} (free)
195	11 s ⁰⁷	51 i-long ^{17 18} [i] ⁶⁵ [i-over-short] ^{20 31 66} (free)	64 upsilon ^{17 18 21 24}
195	12 z ⁰⁷		65 o-long ^{17 18} [o] ⁶⁵ [o-over-short] ^{20 69} (free)
195	14 s-hacek ^{08 09 10}	52 u-trema-long ^{17 18} [u-trema] ⁶⁵	66 o-open ^{17 18 21}
195	15 z-hacek ^{10 30} (loan)	53 iota ^{17 18 21 24}	67 yod [j-fricative] ⁷⁰ (free)
195	\$a German \$b Standard \$d Germanic \$e Germany \$f 100 million \$g Merritt Ruhlen \$g Marilyn Vihman (review) \$g John Crothers (editor)		
195	\$a Moulton, William G. \$b 1962 \$c The Sounds of English and German \$g Chicago: University of Chicago Press		
195	\$a Philipp, Marthe \$b 1974 \$B Original edition in French (1970) \$c Phonologie des Deutschen \$g Stuttgart: W. Kohlhammer		
195	\$a Warner, Oimar \$b 1972 \$c Phonemik des Deutschen \$f Sammlung Metzler No.108 \$g Stuttgart: J.B. Metzlersche Verlagsbuchhandlung		
195	\$a LONG CONSONANTS \$A Long consonants may arise at morpheme boundary. These are always simplified in everyday speech. (Philipp, p.96)		
195	\$a NASALIZED VOWELS \$A Nasalized vowels occur...in a few words borrowed from French.... They carry with them an air of elegance and foreignness.... It is...very common to substitute...the corresponding oral vowel plus /eng/. (p.67)		
195	\$a PHONOLOGICAL WORD \$A initial C: all but /eng, s, x/ \$A final C: all but /b, d, g, v, z, h/ \$A initial CC: /s-hacek/ + /p-aspirated, t-aspirated, m, n, v, l, r-trill-uvular/; /p-aspirated, k-aspirated, b, g, f, s-hacek, p/f/ + /l, r-trill-uvular/; /t-aspirated, d/ + /r-trill-uvular/; /k-aspirated, g/ + /n/; /k-aspirated, t/s/ + /v/ \$A initial CCC: /s-hacek/ + /p-aspirated/ + /r-trill-uvular, l/; /s-hacek/ + /t-aspirated/ + /r-trill-uvular/ \$A final CC: /l, r-trill-uvular/ + /p-aspirated, t-aspirated, k-aspirated, t/s, f, s-hacek, x, m/; /r-trill-uvular/ + /p/f, n, l/; /p-aspirated, k-aspirated, l/ + /s/; /p-aspirated, m, n/ + /t-aspirated, s-hacek/; /n/ + /t/s, f, x/; /m/ + /p/f/; /f, x/ + /t-aspirated, t/s/; /k-aspirated/ + /t-aspirated/; /t-aspirated/ + /s-hacek/; /s/ + /p-aspirated/ (All these		

clusters are stem-final; many also occur with the second C as a suffix.) \$A final CC: /p/f, s-hacek, eng/ + /t-aspirated, s/; /f, x, r-trill-uvular/ + /s/ (All these clusters contain suffixes; the list may not be complete.) \$A final CCC: /p-aspirated, k-aspirated, m, n, eng, l, trill-uvular/ + /s/ + /t-aspirated/; /r-trill-uvular/ + /p-aspirated, k-aspirated/ + /s/; /r-trill-uvular/ + /k-aspirated, t/s, x, n/ + /t-aspirated/ (all stem internal) \$A final CCC: /f, s-hacek, x/ + /s/ + /t-aspirated/; /l/ + /k-aspirated, f/ + /s/; /r-trill-uvular/ + f, m, n/ + /s/; /m/ + /p/f/ + /s/; /n/ + /f, x/ + /s/; /eng/ + /k-aspirated/ + /s/ (all these contain suffixes) \$A final CCCC: /r-trill-uvular/ + /p-aspirated, n/ + /s/ + /t-aspirated/ (stem internal) (Philipp, p.48ff, p.66ff)

- 195 \$a **STRESS** \$A Stress is defined as relative loudness by Moulton (in "Juncture in Modern Standard German," Language 23.212-226). (See also Werner, p.65.) Also long vowels are short when unstressed (note 65), but no shortening of short vowels is mentioned. Philipp sets up three degrees of stress: primary, secondary, and unstressed. In her system all vowels occur with primary stress except /schwa/, all occur with secondary stress except /epsilon-long, a-long, schwa/, and only /schwa/ occurs unstressed. However, Moulton and others (see Werner, p.65ff) treat her secondary and unstressed categories simply as unstressed. Under this interpretation /schwa/ is in contrast with most of the vowel phonemes, largely in loan words, but also to some degree in native prefixes and suffixes. \$A According to Philipp (p.82-97) native stems almost all have one or two syllables, the latter type with main stress on the first syllable, and unstressed /schwa/ in the second. A few native stems contain secondary stresses (= unstressed syllables with vowels other than /schwa/). The disyllables of this type listed all have main stress on the first syllable; the trisyllables stress the penult. Suffixes are unstressed or take secondary stress, except for a couple of foreign suffixes with main stress. Prefixes take primary or secondary stress. (With primary stress on the prefix, stem stress becomes secondary, but long stem vowels are not shortened, so that this differs from other syllables with secondary stress, and perhaps should be called "reduced primary." See p.90. [JHC]) Compounds generally take primary stress on the first member. Philipp analyzes polysyllabic loan words as equivalent in accentual structure to morphologically complex native words.
- 195 \$a **SYLLABLE** \$A (C)(C)(C)V(V)(C)(C)(C)(C) \$A diphthongs: /ash-dot/ + /iota, upsilon/; /o-open/ + /iota/ (Philipp, p.17)
- 195 01 \$A The stop element of /p/f/ "may be either bilabial or labdental." (p.23) Philipp (p.42) does not allow for the labiodental possibility.
- 195 02 \$A /t-aspirated, d, n, l/ are "articulated with the apex immediately above the upper teeth or, as in English, against the alveolar ridge." (p.23)
- 195 03 \$A "Before and after dorso-alveolar /s/ the phonemes /t-aspirated/ and /n/ may also be dorso-alveolar." (p.23)
- 195 04 \$A /p-aspirated, t-aspirated, k-aspirated/ have "strong aspiration." (p.42)
- 195 06 \$A The author analyzes the affricates /p/f/ and /t/s/ as sequences of two segments: stop + fricative. (Cf. discussion on p.24-25) [MR] Philipp on the other hand regards them as units, because in initial position before [f] and [s] the only possible consonants are [p] and [t] respectively. [t/s-hacek] is also found, in postvocalic position in the native lexicon and initially in some loans, but Philipp treats this as a cluster, since in postvocalic position replacement of either element by other consonants is possible. (p.38)
- 195 07 \$A "/s/ and /z/ are apico-alveolar for some speakers, dorso-alveolar for others." (p.23)
- 195 08 \$A "For [c-fricative] the opening between the front of the tongue and the palate is a shallow slit, whereas for /s-hacek/ it is a deep groove." (p.28)
- 195 09 \$A "German /s-hacek/ is always articulated with rounded lips." (p.41) Philipp (p.44) considers rounding the distinctive feature of the opposition /s/-/s-hacek/. In accordance with general Archive policy we treat this type of lip protrusion as different from labialization, and consider it one of the possible articulations of [s-hacek].
- 195 10 \$A "Some speakers articulate [s-hacek, z-hacek] with the apex, others with the blade."
- 195 12 \$A /m/ may be labiodental before /f/. (p.23)
- 195 14 \$A /l/ is "always 'clear.'" (p.24)
- 195 15 \$A Most speakers pronounce /r-trill-uvular/ as a uvular trill or fricative, but some use instead an apico-alveolar trill or flap. (p.24)
- 195 16 \$A /r-trill-uvular/ can be "fricative or trill." (p.35)
- 195 17 \$A Tenseness = "The relative degree of muscular energy involved in...articulation.... Tense vowels are likely to be longer, higher, and more diphthongal than lax vowels." (p.58)
- 195 18 \$A "In formal speech this [tense/lax] opposition [of the vowels] is suspended in unstressed

- position only for the pair /a-long/-/ash-dot/; in the informal speech of many persons, however, it is suspended for all other pairs as well." (p.64)
- 195 20 \$A The over-short vowel allophones are "not as fully syllabic as [i], and not as fully non-syllabic as [yod]." (p.65)
- 195 21 \$A Short vowels are slightly centralized. (p.61)
- 195 22 \$A [schwa] is "central but tending toward front." (p.67)
- 195 24 \$A As final elements of diphthongs /iota, upsilon/ are said by Siebs to be phonetically higher mid. Also Siebs gives [o-tremal] as the final element of the diphthong identified by Moulton as /o-open.iota/. Moulton finds that "most" speakers use the unrounded form. (p.65) Philipp follows Siebs in her transcription system.
- 195 30 \$A /z-hacek/ is relatively rare, restricted to borrowings. (p.22) Philipp (p.43) says it is frequently replaced by /s-hacek/.
- 195 31 \$A [i-over-short] could also be considered an allophone of /yod/, since /yod/ only occurs after short syllables. (p.65)
- 195 32 \$A "Speakers of German vary widely in their use of /epsilon-long/.... Though exact details are unknown, it is probably more or less true to say that [i] is commonly used only in the South, but generally replaced by /e-long/ in the North; and that everywhere /epsilon-long/ is more frequent in formal (or humorous mock-formal) speech than in informal speech." The phoneme is "of recent invention, based only on the spelling system." (p.69) However Philipp points out (p.18) that no dictionary of the standard language tolerates merger of /epsilon-long/ with /e-long/.
- 195 33 \$A /schwa/ "occurs only in unstressed position." (p.67) Philipp regards /schwa/ as the only unstressed vowel in the system, and thus as the neutralized representative, in this position, of all the stressed vowels. (p.30, 35) (See note on stress.)
- 195 34 \$A [glottal stop] may occur at the beginning of vowel-initial morphemes. Philipp says this is not required in the present day pronunciation. (p.37)
- 195 60 \$A "German speakers often pronounce medial /p-aspirated, t-aspirated, k-aspirated/ unaspirated." (p.42) Philipp says that in every-day speech in any position except directly before a stressed vowel aspiration is weak or absent. However, in more formal speech aspiration is present before unstressed vowels, as well as before /r-trill-uvular/ and /l/. (p.41) The aspirated stops are also more tense than the voiced stops. (Philipp, p.42)
- 195 61 \$A /k-aspirated, g, eng/ are prevelar adjacent to front vowels.
- 195 62 \$A "The choice of [x] and [c-fricative] is largely an automatic matter except in the diminutive suffix. [x] is automatic after short [ash-dot, o, u], long [a-long, o-long, u-long], and the diphthongs /ash-dot.upsilon/, but [c-fricative] is automatic in all other positions.... The diminutive suffix '-chen' is always pronounced [c-fricative.schwa.n], regardless of the type of sound which precedes it." (p.23) (In morpheme initial position only [c-fricative] is found, although it is rare here.) Philipp notes further that except for loans, [c-fricative, x] are also in complementary distribution with [yod], the last occurring only word-initially. However since in loans the distributional restriction is broken for both [yod] and [c-fricative], she sets up two phonemes, /yod/, and /x/. (p.36)
- 195 63 \$A /r-trill-uvular/ is realized as [caret-glide] "after a long vowel." (p.24)
- 195 64 \$A "After unstressed /schwa/, the /r-trill-uvular/ and the /schwa/ combine to give syllabic [caret]." (p.24)
- 195 65 \$A Long vowels are short when unstressed.
- 195 66 \$A [i-over-short] occurs unstressed in prevocalic position after long syllables, in free variation with [i]. (p.65)
- 195 67 \$A [e-over-short] occurs unstressed, in prevocalic position, in free variation with [e].
- 195 68 \$A [u-over-short] occurs unstressed before vowels in free variation with [u].
- 195 69 \$A [o-over-short] occurs unstressed before vowels in free variation (?) with [o]. (p.66)
- 195 70 \$A /yod/ is "often pronounced with some degree of consonantal friction." (p.24) (See also p.65.)